AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Original) A phase transition method of an amorphous material, comprising steps of:

depositing the amorphous material on a dielectric substrate;

forming a cap layer on the amorphous material;

depositing a metal having a surface density in a range of 10^{12} to 10^{15} cm^{-2} on the whole surface of the cap layer; and

performing a phase transition on the amorphous material.

2. (Original) The phase transition method of an amorphous material according to claim 1, wherein the method further comprises a step of depositing a buffer layer before the step of depositing the amorphous material on the dielectric substrate.

3. (Original) The phase transition method of an amorphous material according to claim 1, wherein the method further comprises a step of performing preliminary thermal treatment before

the step of performing a phase transition on the amorphous material.

4. (Original) The phase transition method of an amorphous material according to claim 1, wherein the method further comprises a step of removing the metal and the cap layer after the step of performing a phase transition on the amorphous material.

5. (Original) The phase transition method of an amorphous material according to claim 3, wherein the method further comprises a step of patterning the thermally-treated film after the step of performing preliminary thermal treatment before the step of performing a phase transition on the amorphous material.

6. (Original) The phase transition method of an amorphous material according to claim 1, wherein the method further comprises a step of depositing a second cap layer on the metal, and a step of patterning the stack structure after the step of depositing the metal before the step of performing a phase transition on the amorphous material.

7. (Currently Amended) A phase transition method of an amorphous material, comprising steps of:

depositing a metal having a surface density in a range of 10^{12} to 10^{15} cm^{-2} on the whole surface of a dielectric substrate to allow diffusion of the metal uniformly into the amorphous material;

forming a buffer or cap layer on the metal;

patterning the metal after the step of depositing the metal;

depositing a second cap layer on the metal;

depositing the amorphous material on the buffer or cap layer; and

performing a phase transition on the amorphous material after the step of patterning.

8. (Original) The phase transition method of an amorphous material according to claim 1, wherein the method further comprises a step of performing a secondary phase transition on the phase-transitioned material after the step of performing the phase transition on the amorphous material.

9. (Currently Amended) The phase transition method of an amorphous material according to claim 1, wherein the dielectric substrate ~~material~~ is a material selected from glass, quartz, a single crystal wafer covered with an oxide film, and a thin metal substrate covered with a dielectric film.

10. (Original) The phase transition method of an amorphous material according to claim 1, wherein the amorphous material is an amorphous silicon.

11. (Original) The phase transition method of an amorphous material according to claim 1, wherein the cap layer is a single film comprising one selected from a silicon nitride film, a

silicon oxide film, an organic film, or a double film comprising a silicon nitride film and a silicon oxide film.

12. (Original) The phase transition method of an amorphous material according to claim 1, wherein the cap layer comprises a first part having a thin thickness and a second part having a thick thickness.

13. (Original) The phase transition method of an amorphous material according to claim 12, wherein a lower portion of the second part is made up of the same material as that of the first part.

14. (Original) The phase transition method of an amorphous material according to claim 12, wherein an upper portion of the second part is made up of the same material as or the different material from that of the first part.

15. (Original) The phase transition method of an amorphous material according to claim 1, wherein the cap layer is deposited by a PECVD method.

16. (Original) The phase transition method of an amorphous material according to claim 15, wherein the deposition is performed at a temperature of 650°C or less.

17. (Original) The phase transition method of an amorphous material according to claim 1, wherein the thickness of the cap layer is in a range of 0.1 to 1000nm.

18. (Original) The phase transition method of an amorphous material according to claim 6, wherein the thickness of the second cap layer is in a range of 0.1 to 1000nm.

19. (Original) The phase transition method of an amorphous material according to claim 1, wherein the deposition of the metal is performed by using an ion implantation, a PECVD, a sputter, a shadow mask, or a coating of a liquid-phase metal dissolved in an acid solution, a spin coating of a mixture of an organic film and a liquid-phase metal, or a gas containing a metal.

20. (Original) The phase transition method of an amorphous material according to claim 1, wherein the metal is partially patterned by using one selected form a photolithography, a photoresist, and a shadow mask.

Claim 21. (Cancelled)

22. (Original) The phase transition method of an amorphous material according to claim 1, wherein the metal is deposited to have a thickness of 1000nm or less.

23. (Original) The phase transition method of an amorphous material according to claim

1, wherein the metal is nickel.

24. (Original) The phase transition method of an amorphous material according to claim 2, wherein the buffer layer is a layer selected from a silicon nitride film and a silicon oxide film, or a double layer comprising a silicon nitride and a silicon oxide films.

25. (Original) The phase transition method of an amorphous material according to claim 3, wherein the preliminary thermal treatment is performed at a temperature of 200 to 800°C.

26. (Original) The phase transition method of an amorphous material according to claim 1, wherein the phase transition of the amorphous material is performed by at least one method selected from a thermal treatment method, a rapid thermal treatment method, and a laser illumination method.

27. (Original) The phase transition method of an amorphous material according to claim 8, wherein the secondary phase transition of the amorphous material is performed by at least one method selected from a thermal treatment method, a rapid thermal treatment method, and a laser illumination method.

28. (Original) The phase transition method of an amorphous material according to claim 26, wherein the thermal treatment is performed at a temperature of 400 to 1300°C.

29. (Original) The phase transition method of an amorphous material according to claim 27, wherein the thermal treatment is performed at a temperature of 400 to 1300°C.

30. (Original) The phase transition method of an amorphous material according to claim 26, wherein the thermal treatment is performed by one selected from a halogen lamp, an ultraviolet lamp, and a furnace.

31. (Original) The phase transition method of an amorphous material according to claim 27, wherein the thermal treatment is performed by one selected from a halogen lamp, an ultraviolet lamp, and a furnace.

32. (Original) The phase transition method of an amorphous material according to claims 26, wherein an electric field or a magnet field is applied in the thermal treatment process.

33. (Original) The phase transition method of an amorphous material according to claim 27, wherein an electric field or a magnet field is applied in the thermal treatment process.